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1 [Special issue on wireless extensions to the internet: Interworking internet telephony and wireless telecommunications networks](#)

Jonathan Lennox, Kazutaka Murakami, Mehmet Karaul, Thomas F. La Porta

October 2001 **ACM SIGCOMM Computer Communication Review**, Volume 31 Issue 5Full text available: [pdf\(1.09 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#)

Internet telephony and mobile telephony are both growing very rapidly. Directly interworking the two presents significant advantages over connecting them through an intermediate PSTN link. We propose three novel schemes for the most complex aspect of the interworking: call delivery from an Internet telephony (SIP) terminal to a mobile telephony (UMTS) terminal. We then evaluate the proposals both qualitatively and quantitatively. However, existing equipment may not support packet interfaces n ...

2 [An open architecture for next-generation telecommunication services](#)

Gregory W. Bond, Eric Cheung, K. Hal Purdy, Pamela Zave, J. Christopher Ramming

February 2004 **ACM Transactions on Internet Technology (TOIT)**, Volume 4 Issue 1Full text available: [pdf\(237.24 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

An open (in the sense of extensible and programmable) architecture for IP telecommunications must be based on a comprehensive strategy for managing feature interaction. We describe our experience with BoxOS, an IP telecommunication platform that implements the DFC technology for feature composition. We present solutions to problems, common to all efforts in IP telecommunications, of feature distribution, interoperability, and media management. We also explain how BoxOS addresses many deficiencies ...

Keywords: Component architectures, Intelligent Network architecture, Session Initiation Protocol, electronic mail, feature interaction, instant messaging, multimedia systems, network addressing, network interoperation, network optimization, network protocols, service creation

3 [Voice over IP](#)

Upkar Varshney, Andy Snow, Matt McGivern, Christi Howard


January 2002 **Communications of the ACM**, Volume 45 Issue 1Full text available: [pdf\(113.77 KB\)](#) [html\(34.89 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

How can voice over the Internet claim a greater share of the worldwide phone market from the voice infrastructure dominated for more than 100 years by the public-switched telephone network?

4 Notable computer networks

John S. Quarterman, Josiah C. Hoskins

October 1986 **Communications of the ACM**, Volume 29 Issue 10

Full text available:  pdf(4.66 MB)


Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Computer networks are becoming more numerous and more diverse. Collectively, they constitute a worldwide metanetwork.

5 Routing and handoff in the edge mobility architecture

Alan O'Neill, M. Scott Corson, George Tsirtsis

October 2000 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 4 Issue 4

Full text available:  pdf(1.75 MB)

Additional Information: [full citation](#), [abstract](#), [index terms](#)

We consider a future IP network architecture in which the core topology is fixed but where the hosts at the edge of the network may be mobile, as is the case in cellular networks. Within this architecture, Mobile-Enhanced Routing (MER) protocols are used to support the prefix-routed requirements of the fixed Internet, along with the movement of IP addresses allocated to mobile nodes. We outline a specific components for the support of such edge mobility (EMA:MER) that offers fixed/mobile IP netw ...

6 A distributed database architecture for global roaming in next-generation mobile networks

Zuji Mao, Christos Douligeris

February 2004 **IEEE/ACM Transactions on Networking (TON)**, Volume 12 Issue 1

Full text available:  pdf(427.81 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The next-generation mobile network will support terminal mobility, personal mobility, and service provider portability, making global roaming seamless. A location-independent personal telecommunication number (PTN) scheme is conducive to implementing such a global mobile system. However, the nongeographic PTNs coupled with the anticipated large number of mobile users in future mobile networks may introduce very large centralized databases. This necessitates research into the design and performan ...

Keywords: database architecture, location management, location tracking, mobile networks

7 Delayed Internet routing convergence

Craig Labovitz, Abha Ahuja, Abhijit Bose, Farnam Jahanian

June 2001 **IEEE/ACM Transactions on Networking (TON)**, Volume 9 Issue 3

Full text available:  pdf(220.26 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper examines the latency in Internet path failure, failover, and repair due to the convergence properties of interdomain routing. Unlike circuit-switched paths which exhibit failover on the order of milliseconds, our experimental measurements show that interdomain routers in the packet-switched Internet may take tens of minutes to reach a consistent view of the network topology after a fault. These delays stem temporary routing table fluctuations formed during the operation of the Bo ...

Keywords: Internet, failure analysis, network reliability, routing

8 Application-layer mobility using SIP

Henning Schulzrinne, Elin Wedlund

July 2000 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 4 Issue 3


Full text available:  [pdf\(1.34 MB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Supporting mobile Internet multimedia applications requires more than just the ability to maintain connectivity across subnet changes. We describe how the Session Initiation Protocol (SIP) can help provide terminal, personal, session and service mobility to applications ranging from Internet telephony to presence and instant messaging. We also briefly discuss application-layer mobility for streaming multimedia applications initiated by RTSP.

9 Delayed Internet routing convergence

Craig Labovitz, Abha Ahuja, Abhijit Bose, Farnam Jahanian

August 2000 **ACM SIGCOMM Computer Communication Review , Proceedings of the conference on Applications, Technologies, Architectures, and Protocols for Computer Communication**, Volume 30 Issue 4

Full text available:  [pdf\(313.83 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper examines the latency in Internet path failure, failover and repair due to the convergence properties of inter-domain routing. Unlike switches in the public telephony network which exhibit failover on the order of milliseconds, our experimental measurements show that inter-domain routers in the packet switched Internet may take tens of minutes to reach a consistent view of the network topology after a fault. These delays stem from temporary routing table oscillations formed during ...

10 vGPRS: a mechanism for voice over GPRS

Ming-Feng Chang, Yi-Bing Lin, Ai-Chun Pang

March 2003 **Wireless Networks**, Volume 9 Issue 2

Full text available:  [pdf\(256.70 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper proposes vGPRS, a voice over IP (VoIP) mechanism for general packet radio service (GPRS) network. In this approach, a new network element called VoIP mobile switching center (VMSC) is introduced to replace standard GSM MSC. Both standard GSM and GPRS mobile stations can be used to receive real-time VoIP service, which need not be equipped with the VoIP (i.e., H.323) terminal capabilities. The vGPRS approach is implemented using standard H.323, GPRS, and GSM protocols. Thus, existing G ...

Keywords: GGSN, GPRS, SGSN, VoIP, gatekeeper

11 Technical papers: 4+4: an architecture for evolving the Internet address space back toward transparency

Zoltán Turányi, András Valkó, Andrew T. Campbell

October 2003 **ACM SIGCOMM Computer Communication Review**, Volume 33 Issue 5

Full text available:  [pdf\(521.88 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)


We propose 4+4, a simple address extension architecture for Internet that provides an evolutionary approach to extending the existing IPv4 address space in comparison to more complex and disruptive approaches best exemplified by IPv6 deployment. The 4+4 architecture leverages the existence of Network Address Translators (NATs) and private address realms, and importantly, enables the return to end-to-end address transparency as the incremental deployment of 4+4 progresses. During the transition t ...

12 Database and location management schemes for mobile communications

Anna Hać, Bo Liu

December 1998 **IEEE/ACM Transactions on Networking (TON)**, Volume 6 Issue 6Full text available:  [pdf\(264.51 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)**Keywords:** GSM, broadcast, cost, mobility management, partition, routing, switching**13 Service infrastructure and network management: MobiDesk: mobile virtual desktop computing**

Ricardo A. Baratto, Shaya Potter, Gong Su, Jason Nieh

September 2004 **Proceedings of the 10th annual international conference on Mobile computing and networking**Full text available:  [pdf\(580.39 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present MobiDesk, a mobile virtual desktop computing hosting infrastructure that leverages continued improvements in network speed, cost, and ubiquity to address the complexity, cost, and mobility limitations of today's personal computing infrastructure. MobiDesk transparently virtualizes a user's computing session by abstracting underlying system resources in three key areas: display, operating system, and network. It provides a thin virtualization layer that decouples a user's computing ses ...

Keywords: computer utility, network mobility, on-demand computing, process migration, thin-client computing, virtualization**14 Identification and classification: Transport layer identification of P2P traffic**

Thomas Karagiannis, Andre Broido, Michalis Faloutsos, Kc claffy

October 2004 **Proceedings of the 4th ACM SIGCOMM conference on Internet measurement**Full text available:  [pdf\(540.18 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Since the emergence of peer-to-peer (P2P) networking in the late '90s, P2P applications have multiplied, evolved and established themselves as the leading 'growth app' of Internet traffic workload. In contrast to first-generation P2P networks which used well-defined port numbers, current P2P applications have the ability to disguise their existence through the use of arbitrary ports. As a result, reliable estimates of P2P traffic require examination of packet payload, a methodological landmin ...

Keywords: measurements, peer-to-peer, traffic classification**15 Session 10: active measurement: Predicting and bypassing end-to-end internet service degradations**

Anat Bremler-Barr, Edith Cohen, Haim Kaplan, Yishay Mansour

November 2002 **Proceedings of the 2nd ACM SIGCOMM Workshop on Internet measurment**Full text available:  [pdf\(1.36 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citing](#), [index terms](#)

We study the patterns and predictability of Internet End-to-End service *degradations*, where a degradation is a significant deviation of the round trip time between a client and a server. We use simultaneous RTT measurements collected from several locations to a large representative set of Web sites and study the duration and extent of degradations. We

combine these measurements with BGP cluster information to learn on the location of the cause. We evaluate a number of predictors based upon ...

16 Network architecture and traffic transport for integrated wireless communications over enterprise networks

Henry C.B. Chan, Victor C.M. Leung, Robert W. Donaldson

August 1997 **Wireless Networks**, Volume 3 Issue 3

Full text available:  [pdf\(455.85 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A novel network architecture based on the IEEE 802.6 metropolitan area networks (MAN) is proposed to integrate the wireless and wired segments of a regional enterprise network (REN) within a city. This architecture functions like a distributed switch for all types of services, reducing traffic congestion by sharing the high capacity link dynamically and facilitating signaling, mobility management, call processing and network management through its distributed functions, transport facilities ...

17 Analysis and evaluation of mobile IPv6 handovers over wireless LAN

Nicolas Montavont, Thomas Noël

December 2003 **Mobile Networks and Applications**, Volume 8 Issue 6

Full text available:  [pdf\(431.59 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


In this paper, we analyze the IPv6 handover over wireless LANs. Mobile IPv6 is designed to manage mobile nodes movements between wireless IPv6 networks. Nevertheless, a mobile node cannot receive IP packets on its new point of attachment until the handover completes. Therefore, a number of extensions to Mobile IPv6 have been proposed to reduce the handover latency and the number of lost packets. We focus on Fast Mobile IPv6 which is an extension of Mobile IPv6 that allows the use of L2 triggers ...

Keywords: IEEE 802.11b, fast mobile IPv6, handovers, mobile IPv6, wireless LAN

18 Performance of routing schemes in wireless personal networks

Anna Della Torre Hać, Zhu Della Torre Zhu

March 1999 **International Journal of Network Management**, Volume 9 Issue 2


Full text available:  [pdf\(329.82 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Routing efficiency in wireless communication networks depends critically on the propagation of location information into the network. We propose new dynamic traffic and state-dependent routing algorithms which are suitable for the demands of future wireless personal communications networks. Copyright © 1999 John Wiley & Sons, Ltd.

19 Internet mobility 4x4

Stuart Cheshire, Mary Baker


August 1996 **ACM SIGCOMM Computer Communication Review , Conference proceedings on Applications, technologies, architectures, and protocols for computer communications**, Volume 26 Issue 4

Full text available:  [pdf\(208.28 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Mobile IP protocols allow mobile hosts to send and receive packets addressed with their home network IP address, regardless of the IP address of their current point of attachment in the Internet. While some recent work in Mobile IP focuses on a couple of specific routing optimizations for sending packets to and from mobile hosts [Joh96] [Mon96], we show that a variety of different optimizations are appropriate in different circumstances. The best choice, which may vary on a connection-by-connection basis ...

20 Distributed file systems: concepts and examples

Eliezer Levy, Abraham Silberschatz

December 1990 **ACM Computing Surveys (CSUR)**, Volume 22 Issue 4Full text available:  [pdf\(5.33 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

The purpose of a distributed file system (DFS) is to allow users of physically distributed computers to share data and storage resources by using a common file system. A typical configuration for a DFS is a collection of workstations and mainframes connected by a local area network (LAN). A DFS is implemented as part of the operating system of each of the connected computers. This paper establishes a viewpoint that emphasizes the dispersed structure and decentralization of both data and con ...

Results 1 - 20 of 200

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